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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/731,264 | 12/05/2000 | Benjamin A. Bonner | 005082/CMP | 9053 |

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APPLIED MATERIALS, INC.
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SANTA CLARA, CA 95050

EXAMINER

DEO, DUY VU NGUYEN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1765

9

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 09/731,264 | Applicant(s) BONNER ET AL. | |
| | Examiner DuyVu n Deo | Art Unit 1765 | |
| | | | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some * c) ☐ None of:
 - 1. ☐ Certified copies of the priority documents have been received.
 - 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida et al. (JP 11-138418).

US 6,191,038 is considered as the correct translation of JP 11-138418 and its translation will be provided upon applicant's request.

Yoshida describes a method for polishing semiconductor substrate comprising: polishing the substrate to remove a first portion of the substrate by holding the substrate against the pad with a polishing force while applying a slurry to the pad; rinsing the polishing pad; polishing the substrate to remove a second portion of the substrate by holding the substrate against the pad with a polishing force while applying the slurry to the pad (col. 13, line 1-36). Between the first and the second polishing step, the pad is rinsing and dressing to unclog the pad, therefore, to return its surface to the original condition. Since its surface is restored to the original condition as it is in the first polishing step, there would be no roughening the pad between the first and the second portions polishing.

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Referring to claim 3, the first and second portion would have to equal to the amount selected for first and second polishing steps. This would read on claimed of first and second portion equal to selected amount.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida.

Unlike claim 6, Yoshida doesn't describe the substrate is held against the pad with a 0 psi force while rinsing the pad. However, he describes the rinsing step starts after the first polishing step is finished and in the substrate is pressed against the pad starting the second polishing step (col. 13, line 13-25). This would indicate that the wafer is held against the pad with no force. Therefore, it would have been obvious that the substrate would not forced against the pad while rinsing because there is no polishing of the substrate during the cleaning of the pad.

Referring to claim 5, rinsing and cleaning the pad with deionized water is well known to one skilled in the art (please see cited Cadien below).

5. Claims 7, 9, 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida, and further in view of Woo (US 5,816,891).

Unlike claimed invention, Yoshida doesn't describe transferring and polishing the substrate at a second polishing station. Woo teaches a method for CMP of semiconductor substrate where he describes transferring and polishing the substrate at a second polishing station (col. 5, line 39-65; col. 7, line 23-55). It would have been obvious for one skilled in the art to modify Yoshida's method in light of Woo because Woo teaches that polishing at different polishing pad (or polishing station) would reduce polishing time, results in less polish pad loading, and highest polish rate produced by a freshly conditioned polished pad can be maintained (col. 5, line 38-55).

Referring to claim 13, it would be obvious that the polishing of the substrate could be at the second polishing before the first polishing station as long as each station could be used to polish the substrate with an expectation of a reasonable success.

6. Claims 2, 4, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida or Yoshida/Woo as applied to claims 1 and 7 above, and further in view of admitted prior art.

Referring to claims 2, 4, 8, and 10 using either stable or unstable polishing slurry which is mixed in a point of use mixing system before use is well known to one skilled in the art as shown in pages 1 and 2 of the specification. Therefore, using slurry such as slurry mixed in a point of use would have been obvious to one skilled in the art in order to provide a slurry to polish the substrate with an expectation of a reasonable success.

7. Cadien et al. (US 5,954,975) is cited to show prior art (col. 9, line 27).

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1 and 7 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Page 6 doesn't describe or address anything about whether the pad is roughened or not by a pad conditioner between the first and the second polishing step.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The specification doesn't describe what is meant by "the polishing pad is not roughened by pad conditioner" since most of the polishing pad would have pores or roughened in the first place in order to remove material from the substrate during polishing.

Response to Arguments

12. Applicant's arguments filed 12/26/02 have been fully considered but they are not persuasive.

. Between the first and the second polishing step, the pad is rinsing and dressing to unclog the pad, therefore, to return its surface to the original condition. Since its surface is restored to the original condition as it was in the first polishing step, there would be no roughening the pad between the first and the second portions polishing.

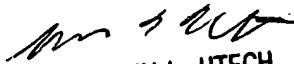
Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n Deo whose telephone number is 703-305-0515.

DVD
February 7, 2003


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